

REMARKS

Reexamination of this application and reconsideration of the rejection of the claims thereof are respectfully requested under the provisions of Rule 112 for the reasons set forth below.

Claims 218-220, 224, 287 and 344 stand rejected under 35 USC 102(b) on U.S. Patent No. 1,276,346 to Gould.

This rejection is respectfully traversed.

Claim 218 calls for the shaft to be rotatable. There is no rotation of the shaft in Gould. Reference is made to column 1, lines 48-51. Shaft "A" is keyed to stationary bearing members E.

Claim 219 calls for the housing to have the cylinder assembly rotatable therein. Gould shows no housing, nor a need for one. Claim 220 calls for complimentary surfaces of wave-like configurations. This is not shown in Gould. All of the remaining claims are dependent on claims 218, 219 or 220 and accordingly lack the teaching.

Claims 220 and 240 stand rejected under 35 USC 102(b) on U.S. Patent No. 593,248 to Smith.

This rejection is respectfully traversed.

Claim 220 calls for the cylinder assembly and the component assembly to define two surfaces, each of wave-like configurations. Smith shows no two

surfaces of wave-like configurations. Claim 240 is dependent on claim 220 and accordingly lacks the same teaching.

Claims 220, 243, 276 and 341 stand rejected under 35 USC 102(b) on U.S. Patent No. 1,801,633 to MacKirdy.

This rejection is respectfully traversed.

MacKirdy shows no two surfaces of wave-like configuration. Accordingly, MacKirdy does not anticipate the present invention. Claims 243, 276 and 341 are all dependent on claim 220 and likewise do not anticipate the present invention.

To anticipate under 35 USC 102, a prior art reference must disclose each and every element of the claimed invention or their equivalents and the elements must function in substantially the same way to produce substantially the same result. Identity of structure, purpose and result are required to make out anticipation. *Tate Engineering Inc. v. United States et al*, 175 USPQ 115. *Penn Yan Boats Inc. v. Sealark Boats Inc. et al*, 175 USPQ 260.

Claims 220, 227, 229, 231, 287, 288, 318 and 347 stand rejected under 35 USC 103(a) on U.S. Patent No. 1,276,346 to Gould because:

“Gould discloses a rotary engine with a rotatable piston at 41 with a projection at 21 and a cylinder. The piston comprises a plurality of portions secured by bolts 43 which are under tension. However, the features of an egr system, hollow bolts, and the mere inclusion of any pump are all elements common to engines and as such would have been obvious to one of ordinary skill in the art to provide them.”

This rejection is respectfully traversed for reasons as stated above with respect to the rejection on Gould under 35 USC 102(b) and because Gould does

not teach or disclose the present invention. Gould calls for a rotary engine in which the cylinder assembly rotates about a stationary shaft. This disclosure certainly is not suggestive of a rotatable shaft, nor of the piston and cylinder having wave-like configurations to enable the piston to rotate while reciprocating. Claims 227, 229, 231, 287, 288, 318 and 347 are dependent on claim 220 and accordingly lack the above-mentioned teaching.

Claims 227, 246 and 252 stand rejected under 35 USC 103(a) on U.S. Patent No. 593,248 to Smith because “to include an egr system and air filtering material in Smith for their desired functions would have been obvious to one of ordinary skill in the art.”

This rejection is respectfully traversed for reasons as stated above with respect to the rejection of claims 220 and 240 on Smith under 35 USC 102(b). The differences are not obvious to one of ordinary skill in the art.

Claims 220, 227, 249, 255, 261, 281, 282, 329 and 332 stand rejected under 35 USC 103(a) on U.S. Patent No. 2,918,045 to Brown in view of U.S. Patent No. 3,757,748 to Arney and U.S. Patent No. 3,503,716 to Berger because

“Brown shows an engine comprising bolts under tension for a cylinder assembly, toroidal combustion chambers, and an exhaust passage near 40. However, there is no egr system, hollow bolts, rotating/reciprocating piston, and partially surrounding volume with catalytic filamentary material.

Arney teaches the recited rotating/reciprocating piston mechanism at 45. Berger teaches filamentary catalytic material at 43 in an exhaust system. It would have been obvious to one of ordinary skill in the art to modify Brown to use a reciprocating/rotating piston mechanism as taught by Arney and a filamentary catalytic material

in an exhaust system which would then form a partially surrounding volume as taught by Berger. The use of an egr system to reduce pollution is well known and to use hollow bolts to reduce weight would be an obvious expedient.”

This rejection is respectfully traversed.

Brown shows a non-rotatable piston. Arney shows a rotating piston. There is nothing in Brown to suggest modification by Arney.

Apparatus cannot be rejected on a combination of elements allegedly drawn from prior art disclosures where elements must be modified to meet the claims and where both the combination and the modifications must be made in the light of applicant’s teachings rather than in the light of suggestions derived from the prior art. *Walker v. Ladd, Comm. Pats.*, 138 USPQ 386.

Berger, although showing catalytic bodies 44 and catalytic active wire 43, does not supply the lack of teaching of Brown or Arney. Claims 227, 249, 255, 261, 281, 282, 329 and 332 are directly or indirectly dependent on claim 220 which is not rendered obvious by the references.

Claims 220, 227, 229, 234, 237, 329 and 332 stand rejected under 35 USC 103(a) on U.S. Patent No. 3,757,748 to Arney in view of U.S. Patent 2,310,269 to Waeber because

“It would have been obvious to one of ordinary skill in the art to gang a plurality of the engines shown by Arney to a single output shaft as taught by Waeber for increased power. In regard to claim 237, the ‘special means’ is so broad as to read on a shared exhaust system. The use of egr systems to reduce pollution is notoriously well known.”

This rejection is respectfully traversed.

Arney shows a rotatable reciprocating engine, but does not teach the complimentary wave-like configurations of the present invention, nor the sole rotatability of the shaft while the piston is rotating and reciprocating.

Waeber seems to deal with an engine plant having at least two crankshafts. Waeber does not supply the lack of teaching of Arney. Claims 227, 229, 234, 237, 329 and 332 are either directly or indirectly dependent on claim 220. Accordingly, Arney and Waeber do not render the present invention obvious.

Claims 264, 267, 335 and 338 stand rejected under 35 USC 103(a) on U.S. Patent No. 1,276,346 to Gould as applied to claims 220, 224 and 227 above and further in view of U.S. Patent No. 3,112,810 to Nallinger because "to include an insulative housing around Gould as taught by Nallinger at 10 to reduce noise would have been obvious to one of ordinary skill in the art.

This rejection is respectfully traversed for reasons stated above with respect to the rejection of claims 220, 227, 229, 231, 287, 288, 318 and 347. Although Nallinger teaches an insulative housing, it does not supply the lack of teaching of Gould. Accordingly, Gould and Nallinger do not render the present invention obvious.

Claims 270, 273, 291, 294, 297 and 300 stand rejected under 35 USC 103(a) on U.S. Patent No. 1,276,346 to Gould as applied to claims 220 and 227 and further in view of U.S. Patent No. 1,755,578 to Goldsborough because

“To make the piston and cylinder of Gould from ceramic to increase thermal efficiency would have been obvious to one of ordinary skill in the art as taught by Goldsborough. The electric circuit reads on a common spark plug.”

This rejection is respectfully traversed for reasons as stated above with respect to the rejection of claims 220, 227, 229, 231, 287, 288, 318 and 347.

Goldsborough teaches the use of ceramics in internal combustion engines, but does not supply the lack of teaching of Gould. Accordingly, the present invention is not rendered obvious by Gould and Goldsborough.

Claim 258 stands objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In view of the amendments to the base claim, it is deemed unnecessary at this time to write claim 258 in independent form.

Claims 303, 306, 309, 312 and 315 are acknowledged as having been withdrawn.

Applicant, in 1973 during work on ceramics in exhaust reactors, independently conceived of the un-cooled all-ceramic engine. Realizing immediately that such commercial engines would look very different from today's reciprocating engines (whose hardware was commercialized around 1750 at the beginning of the steam era) tried to redesign the basic components and layout around what was thought to be new commercial and manufacturing parameters of

truly un-cooled engines. All of the concepts in the disclosure were independently originated by applicant.

Applicant is available for an interview to resolve outstanding matters or answer questions should the Examiner deem it beneficial. Applicant may be reached by fax at (310) 208-3335.

In view of the foregoing, early and favorable consideration is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Richard C. Harris". The signature is fluid and cursive, with the first name "Richard" being more prominent.

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VERSION OF AMENDMENT WITH MARKINGS

IN THE CLAIMS



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218. (*Amended*) [A device for the working of fluids, said device comprising a mechanism, a rotatable shaft,] A rotatable shaft, a mechanism and a device for the working of fluids, said device comprising a cylinder assembly, at least one component assembly mounted to reciprocate within said cylinder assembly, [and means deployed between said cylinder assembly and component assembly to cause said component assembly to rotate while reciprocating in said cylinder assembly, said cylinder assembly having at least one cylinder segment defining an end, said component assembly and said segment having working surfaces that in operation define at least one fluid working chamber varying in capacity during an operating cycle of said device,] said cylinder assembly having at least one first working surface and said component assembly having at least one second working surface such that said working surfaces in operation are approximately parallel and co-axial and variably spaced, said surfaces partly defining at least one fluid working chamber varying in capacity during an operating cycle of said device, means deployed between said cylinder assembly and said component assembly to cause said component assembly and said second surface to rotate while reciprocating relative to said cylinder assembly and said first surface, said component assembly being linked to said shaft by said mechanism, said mechanism causing said shaft to only rotate while said component assembly reciprocates and rotates.

219. *(Amended)* A device for the working of fluids, said device comprising a housing, a cylinder assembly, at least one component assembly mounted to reciprocate within said cylinder assembly, [and means deployed between said cylinder assembly and component assembly to cause said component assembly to rotate while reciprocating in said cylinder assembly, said cylinder assembly having at least one cylinder segment defining an end, said component assembly and said segment having working surfaces that in operation define at least one fluid working chamber varying in capacity during an operating cycle of said device,] said cylinder assembly having at least one first working surface and said component assembly having at least one second working surface such that said working surfaces in operation are approximately parallel and co-axial and variably spaced, said surfaces partly defining at least one fluid working chamber varying in capacity during an operating cycle of said device, means deployed between said cylinder assembly and said component assembly to cause said component assembly and said second surface to rotate while reciprocating relative to said cylinder assembly and said first surface, said cylinder assembly being rotatably mounted within said housing.

220. *(Amended)* A device for the working of fluids, said device comprising a cylinder assembly, at least one component assembly [mounted to move within said cylinder assembly, said cylinder assembly and said component assembly defining complimentary surfaces at least partly of endless wave-like configurations to permit said component assembly to both reciprocate and rotate

relative to said cylinder assembly, said cylinder assembly having at least one cylinder segment defining an end, said component assembly and said segment having working surfaces that in operation define at least one fluid working chamber of varying in capacity during an operating cycle of said device] mounted to reciprocate within said cylinder assembly, said cylinder assembly having at least one first working surface and said component assembly having at least one second working surface such that said working surfaces in operation are approximately parallel and co-axial and variably spaced, said surfaces partly defining at least one fluid working chamber varying in capacity during an operating cycle of said device, each of said surfaces being of endless wave-like configuration to permit and limit said component assembly and said second surface to both reciprocate and rotate relative to said cylinder assembly and said first surface.